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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,763	02/13/2006	Amina Hamidi	004501-820	4261
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EXAMINER NGUYEN, KHIEM D				
ART UNIT 2823		PAPER NUMBER		
NOTIFICATION DATE 03/19/2008		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

### Office Action Summary

**Application No.**

10/551,763

**Applicant(s)**

HAMIDI ET AL.

**Examiner**

KHIEM D. NGUYEN

**Art Unit**

2823

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 January 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 and 15 is/are allowed.
- 6) ☒ Claim(s) 7, 8 and 13 is/are rejected.
- 7) ☒ Claim(s) 9-12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/808)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Remarks*

1. Applicants' amendment to independent claim 7 had obviated the claim objection in the previous rejection.
2. Applicants' amendment to the Title is greatly appreciated.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 7-8 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimizu et al. (U.S. Patent 6,201,696).

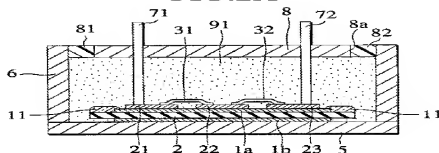
In re claim 7, Shimizu et al. disclose a power semiconductor module, comprising:  
an electrically insulating substrate **2**; a first electrically conductive layer **1a** disposed on at least one portion of a top surface of said electrically insulating substrate **2**, so as to selectively expose at least one peripheral top region of said electrically insulating substrate **2** (see col. 11, line 56 to col. 12, line 8 and FIG. 2A, for example);

at least one semiconductor power chip **21/23** mounted on said first electrically conductive layer **1a** (see col. 12, lines 6-8);

a first electrically insulating material **11** disposed in a corner region formed by said first electrically conductive layer **1a** and said peripheral region of said electrically

insulating substrate **2** ((see col. 12, lines 49-58 and FIG. 2A) and (col. 12, line 63 to col. 13, line 12 and FIG. 2B));

**FIG. 2A**

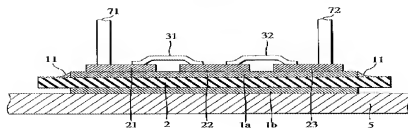


a second insulating material **91** at least partially embedding said semiconductor power chip **21/23**, said electrically insulating substrate **2**, said first electrically conductive layer **1a**, and said first electrically insulating material **11** (col. 11, lines 58-62 and FIG. 2A, for example);

wherein the first electrically insulating material **11** is a polyimide (col. 12, lines 49-58), and

the surface of the first electrically insulating material **11** disposed in the corner region formed by said first electrically conductive layer **1a** and said peripheral region of said electrically insulating substrate **2** is concave-shaped (see col. 12, line 63 to col. 13, line 12 and FIG. 2B, for example).

**FIG. 2B**



In re claim 8, as applied to claim 7 above, Shimizu et al. discloses all claimed limitations including the limitation wherein the electrically insulating substrate **2** is mounted on a bottom plate **5** (see col. 12, lines 9-13 and FIG. 2A, for example).

In re claim 13, as applied to claim 7 above, Shimizu et al. discloses all claimed limitations including the limitation wherein the first electrically insulating material **11** fills gaps in a junction between the first electrically conductive layer **1a** and the electrically insulating substrate **2** (see col. 12, lines 49-63 and FIG. 2A).

*Allowable Subject Matter*

5. Claims 14-15 are allowed over prior art of record.
6. Claims 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Reasons For Allowance*

7. The following is an examiner's statement of reasons for allowance:

It is determined that the prior art of record neither anticipates nor renders obvious the claimed subject matter of the instant application as a whole taken alone or in combination, in particular, prior art of record does not teach "a third insulating material is disposed in a second corner formed by the second electrically conductive layer and the peripheral bottom region of the electrically insulating substrate" as recited in claims 9, 11, and 14 and "a rigid layer of resin is provided between the second electrically insulating material and the semiconductor chip, the substrate, the first conductive layer and the first electrically insulating material" as recited in claims 10, 12, and 15.

***Response to Applicants' Amendment and Arguments***

8. Applicants' arguments filed on January 31<sup>st</sup>, 2008 have been fully considered but they are not persuasive.

Applicants contend that the reference, Shimizu et al. (U.S. Patent No. 6, 201,696), herein known as Shimizu, fails to anticipated Applicants' claims. Applicants note, however, that the epoxy or polyester resin as disclosed in the Shimizu Patent is not analogous to the polyimide material of the first electrically insulating material as recited in Applicants' claims.

In response to Applicants' contention that Shimizu does not teach or suggest wherein the first electrically insulating material is polyimide, Examiner respectfully disagrees.

Applicants' attention is respectfully directed to (col. 12, lines 49-58) where Shimizu discloses that the first electrically insulating material 11 is a solidified insulating material or a hardened resin (such as epoxy or polyester resin). These are thermosetting resin and serve the similar purpose as a thermoplastic resin such as polyimide resin. Therefore, it is well-known to one of ordinary skill in the art at the time of the invention was made that epoxy resin and polyimide resin are interchangeable in order to obtain the same product. See Nidan et al. (U.S. Pub. 2002/0005072), provided here as evidence to show that resin material such as epoxy resin and polyimide resin are interchangeable to obtain the same result (see Page 3, Paragraph [0070]).

For this reason, Examiner holds the rejection proper.

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Correspondence***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHIEM D. NGUYEN whose telephone number is (571)272-1865. The examiner can normally be reached on Monday-Friday (8:30 AM - 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brook Kebede/  
Primary Examiner, Art Unit 2823

/K.N./  
Examiner, Art Unit 2823  
March 04, 2008